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10/533,322

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---|---------------------------------------|--|
| Office Action Summary | Application No. 10/533,322 | Applicant(s) EDER, HEINRICH | |
| | Examiner PETER F. GODENSCHWAGER | Art Unit 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's reply filed May 23, 2008 has been fully considered. Claims 1 and 16-20 are amended, claims 14 and 15 are canceled, and claims 1-13 and 16-22 are pending.

Terminal Disclaimer

The terminal disclaimer filed on May 23, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Pat. No. 7,041,995 and any patent issued for application no. 10/550,248 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 5-7, 11-13, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange (US Pat. No. 6,548,570) in view of Teleki (US Pat. No. 4,795,654).

Regarding Claims 1, 5-7, 11 and 13: Lange teaches a radiation shielding material for radiation from 10 to 200 keV (equivalent to a 10 to 200 kV tube) comprising 12.5 weight percent rubber (matrix material), 52 weight percent of a Sn compound, 28 weight percent of a W compound, and 6.5 weight percent of a compound such as gadolinium oxide or cerium carbonate (Gd or Ce compounds) (2:24-30, and Example 2, 5:40-56).

Lange does not teach the composition as comprising multiple layers of different compositions where the layer more remote from a body being protected comprise predominantly elements having a lower atomic number, and the layer closer to the body comprises predominantly elements having a higher atomic number. However, Teleki teaches a radiation protective composition of multiple layers of differing compositions where one layer may comprise U and another Sn (1:16-28 and 3:28-35). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the multilayers of Teleki with the composition of Lange and would have been motivated to do so because Teleki teaches that another layer may protect from secondary radiation emitted by a first layer (1:16-28). While the references Lange and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered obvious, the layer comprising U will implicitly be capable being placed closer to the body than another layer.

The Office recognizes that all the claimed physical properties are not positively taught by the references, namely that for claim 1, at 60 to 140 kV the lead equivalence is from 0.25 to 2.0 mm and for claim 11 that at 60-90 kV the lead equivalence is from 0.25 to 0.6 mm. However, the references when taken together render obvious all the claimed ingredients, process steps and process conditions. Therefore, the claimed physical properties would implicitly be achieved by the disclosed composition.

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Regarding Claim 12: The 6.5 weight percent of a compound such as gadolinium oxide or cerium carbonate (Gd or Ce compounds) in the composition of Lange (Example 2) anticipates a further addition of 2 to 25 weight percent of a compound that may be Ce.

Regarding Claim 16: The layer taught by Lange comprises 52% Sn (Example 2).

Regarding Claim 17: The layer taught by Lange comprises 52% by weight of Sn and 6.5% by weight of compound such as cerium carbonate (Example 2). This is equivalent to a 58.5% by weight portion of the composition, where in that portion, Sn is present in 89% by weight and cerium carbonate is present in 11% by weight.

Regarding Claim 18: While the references Lange and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered obvious, at some point the layer with higher atomic weight (and therefore lower X-ray fluorescent yield) material for example U, will be closer than the other layer to the body of either the wearer of the material, or a person near the wearer of the material.

Regarding Claim 19: Lange does not teach the composition as comprising at least three layers wherein the middle layer is comprised of elements having a lower atomic number than the two outside layers. However, Teleki teaches using a thin layer of aluminum in between layers such as tin (1:60-2:1). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the triple layer of Teleki in the composition of Lange and would have been motivated to do so because Teleki teaches that the Al layer improves the absorption properties of the structure by dispersing the X-ray or

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gamma radiation (1:65-2:1). Furthermore, by definition, the middle layer will be in between layers that are both further away and closer to any body than the middle layer.

Regarding Claim 20: Lange does not teach the composition as comprising a weakly radioactive layer embedded between two non-radioactive protective layers. However, Teleki teaches using a thin layer of aluminum (a non-radioactive layer) alternating with layers such as uranium (a weakly radioactive compound) (1:38-40 and 60-2:1). Lange and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the triple layer of Teleki in the composition of Lange and would have been motivated to do so because Teleki teaches that the Al layer improves the absorption properties of the structure by dispersing the X-ray or gamma radiation (1:65-2:1).

Regarding Claim 21: Lange further teaches that the compounds are grains (granular) (3:15-26).

Lange does not teach the specific particle size requirement of claim 21. However, it is well known in the art to change result effective variables such as grain size distribution (See MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the grain size distribution of Lange and would be motivated to do so because Lange teaches that "grain size distribution and particle form are important parameters for achieving the desired flexibility with the maximum amount of filler material" (1:33-35).

Regarding Claim 22: Lange additionally teaches that the composition may be part of an apron (6:30-33).

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thiess et al. (US Pub. No. 2004/0262546) in view of Teleki (US Pat. No. 4,795,654).

Thiess et al. teaches a lead-substitute radiation absorbing composition comprising 20-40 weight percent of rubber (matrix material) with the remaining weight percent being radiation absorbing particles ([0015]). With regards to the radiation absorbing particles, Thiess et al. teaches that they may comprise 40-60 weight percent Sn, 20-30 weight percent W, and 20-30 weight percent Bi ([0025]). At 22 weight percent rubber, these ranges give weight percents relative to the entire composition of: 31.2-46.8 for Sn, and 15.6 to 31.2 for W and Bi, anticipating the ranges of claims 1-4.

Thiess et al. does not teach the composition as comprising multiple layers of different compositions where the layer more remote from a body being protected comprise predominantly elements having a lower atomic number, and the layer closer to the body comprises predominantly elements having a higher atomic number. However, Teleki teaches a radiation protective composition of multiple layers of differing compositions where one layer may comprise U and another Sn (1:16-28 and 3:28-35). Thiess et al. and Teleki are analogous art because they are concerned with the same field of endeavor, namely radiation protective materials that may be used in clothing. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the multilayers of Teleki with the composition of Thiess et al. and would have been motivated to do so because Teleki teaches that another layer may protect from secondary radiation emitted by a first layer (1:16-28). While the references Thiess et al. and Teleki do not instruct a use of the layers relative to a body, the claim is to a composition and not to a method of using the composition. As such, in the composition rendered

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obvious, the layer comprising U will implicitly be capable being placed closer to the body than another layer.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lange (US Pat. No. 6,548,570) in view of Teleki (US Pat. No. 4,795,654) as applied to claim 1 above, and further in view of Whittaker et al. (US Pat. No. 3,883,749).

Lange in view of Teleki render the composition of claim 1 obvious as set forth above.

Lange does not teach the addition of Ta, Hf, Lu, Yb, Tm, Th, U or their compounds in an amount of up to 40%. However, Whittaker et al. teaches the use of 10-45% of a uranium compound in a radiation protective garment (abstract, 3:33-37). As claim 9 depends from claim 8, and claim 10 depends from claim 9, the “additionally comprising” in each of these claims is being interpreted as material in addition to what is in the composition of the claim from which it depends. As this includes additional uranium to what may already present, the range of Whittaker et al. overlaps the claimed ranges of instant claims 8-10. Lange and Whittaker et al. are combinable because they are concerned with the same field of endeavor, namely radiation protective garments. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the uranium of Whittaker et al. in the composition of Lange and would have been motivated to do so because Whittaker et al. teaches that uranium is especially effective at blocking x-rays in the fluoroscopically significant range of 10 to 40 keV (3:26-37).

Response to Arguments

Applicant's arguments filed May 23, 2008 have been fully considered but they are not persuasive.

With regards to the combination of Lange and Teleki, while Teleki is not specifically concerned with lead substitute materials, Teleki does not require lead in the composition, and both Lange and Teleki are concerned with radiation shielding material. Furthermore, the broad teaching of Teleki on the advantages of a layered composition would be enough to motivate one of ordinary skill in the art to use such an arrangement regardless of whether lead is present in the composition or not.

With regards to the limitations concerning particular elements being in a layer closer to a body being protected than other elements. As set forth above, the claims are to compositions and not to a methods of using the compositions. As such, in the compositions rendered obvious, any particular layer is capable of being placed closer or further from a body to be protected.

In response to Applicant's amendments and arguments concerning the phrase "weakly radioactive", the 35 U.S.C. 112 second paragraph rejections have been removed.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./
Supervisory Patent Examiner, Art Unit 1796
14-Aug-08

PFG
August 4, 2008